

Grain

JULY, 1942



S-T-A-T-I-C ELECTRICITY

By GROVER C. MEYER, Kansas City (Mo.) Power & Light Co.

Before The Society of Grain Elevator Superintendents

NOTWITHSTANDING the absence of evidence against this unjustly accused culprit, Mr. Static, the National Fire Protection Association's Committee on Static Electricity devoted many recommendations in its annual report to grounding in grain handling plants, including the introduction of a continuous wire placed beneath each bucket at the bolt hole.

THE methods of grounding static are generally more hazardous than the static itself," Expert Meyer contends in his treatise herewith. While a majority have accepted the theory that static causes explosions and fires around grain handling and processing plants, Engineer Meyer has studied the situation through with the thoroughness of a Philadelphia lawyer. His conclusions are that a static charge can never become "hot" enough to do any damage.

THIS was one of the highly interesting and controversial subjects presented before the Superintendents' gathering in Minneapolis. We will publish the papers presented on the other side of this argument, which promises to become a major debate before it is settled—if ever.

THE intent and purpose of this paper is not to bring out new facts or methods of control relative to static electricity. Rather it is to state briefly the characteristics and effects of an invisible agent, which seemingly has been responsible for a vast number of fires and explosions. Also it is to enable us to discuss this subject more intelligently, thereby bringing about new methods of control in order to minimize the loss of life and commodities confined within the elevator storage.

You gentlemen long have been confronted with the problem of preventing fires and accidents in the plants which have been left in your charge, and most of you, in the course of your experience, have formed your own opinions as to the seriousness of static electricity in grain elevators. This, I hope will be strengthened or weak-

ened, as the case may be, by the information contained in this paper and the discussion following its delivery.

STATIC ELECTRICITY OR ELECTRIFICATION BY FRICTION

IF A piece of hard rubber is rubbed with flannel and then brought close to bits of paper it will be found that an attraction exists that will cause the paper to jump toward the rod. This sort of attraction, which is so familiar to us, was observed as early as 600 B. C., when it was found that rubbed amber draws to itself threads and other light objects.

It was not until approximately one thousand years later that it was discovered that the same effect could be brought about by rubbing together a great variety of other substances besides amber and silk. For example, glass and silk; wax and flannel; hard rubber and cat's fur; etc.

The effect which was produced upon these various substances by friction was named, "electrification" after the Greek name "electron," meaning "amber," and the body that was affected was said to be electrified, or had a charge of electricity.

The nature of electricity is not known with any certainty, but we are fairly familiar with the laws which

govern its action. Static electricity in our modern times has ceased to be merely a curiosity, but has become one of the main troubles of practically every manufacturer where mechanical power is transmitted by frictional contact of two dissimilar materials.

Electricity so generated continues to build up a charge until it reaches a pressure sufficiently high to overcome the resistance of a path to a body of opposite polarity when it manifests itself in the form of a spark.

This is the theory upon which the lightning rod functions. Briefly, this action is as follows: As a charged cloud approaches a building it induces an opposite charge in the rod. This induced charge escapes rapidly from the sharp point. It will be seen, therefore, that lightning rods protect buildings not because they conduct the lightning to the earth, but because they prevent the formation of powerful charges in the neighborhood of the buildings on which they are placed. It is this same principle that is made use of in some of the controls of static which will be mentioned later in the paper.

IS STATIC REALLY RESPONSIBLE

STATIC electricity is credited with the causes of many fires and explosions, either directly or indirectly. There has always been a question in the writer's mind as to just what percentage of fires in grain elevators has been caused by static.

It is true that the same conditions exist in grain elevators that exist in other industries, as the equipment used generates static electricity. There is one difference, however, and that is that in grain elevators the condition of the air during the colder seasons of the year is more or less ideal for the accumulation of static charges, due to the lack of controlled humidity,—moisture being one of the enemies of static.

It is not possible to prevent the generation of static electricity, but by a constant drain it can be prevented from attaining high potentials which

NOT KIDDING ANYBODY



sometimes reach pressures as high as 75,000 volts. The prevention of these high potentials is usually accomplished by grounding all parts of the machinery where static is likely to be generated.

As pointed out in the earlier part of the paper, static is generated by friction and the potentials are greater on pointed objects than on blunt surfaces. The probable sources of static in grain elevators are from friction on head pulleys, belt conveyor concentrators, wheat in spouting, and dust in the collector's systems, and it is doubtful if any of these—with the exception of elevator legs—are of sufficient length between grounded parts to cause any great concern.

This, however, is my personal opinion, as I have been unable to obtain any definite information as to just how high potentials have been recorded in grain elevator equipment, except that higher potentials exist in equipment handling smutty grain.

CAN BE DISPERSED

STATIC charges can be removed by several other methods, such as ionization of air by gas flames, and by static neutralizers which ionize the air by high voltage or corona discharges, but in most cases these methods are more hazardous than the static itself.

While it is possible, as mentioned before, to reach pressures of 75,000 volts, as a usual case the capacity back of this pressure is very low. Hence, the current could probably be conducted over a line drawn by a lead pencil. But for the sake of mechanical strength, permanent grounding, and a large amount of receiving capacity, it is necessary to use large surface conductors, especially where grounds are of considerable length, originating in the top of the working house. In order that the opposition to the flow of a high frequency discharge will be kept as low as possible it is necessary to limit the use of magnetic metals for grounds as far as practical.

High potentials are also more frequent where the velocity of the moving parts is high. This is also true of high velocity air and liquids, especially where the percentage of solids is high. A sawdust conveying system is one example of this and the introduction of moisture into the stream has been very effective in overcoming static.

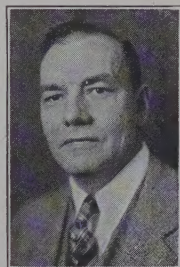
The methods and control of static are comparatively few and the sources are great in number. This does not leave the elevator operator much choice, except to elaborate on one or more of the simple methods of preventing the accumulation of static charges rather than creating dangerous sparks by the application of metal combs or static neutralizers. There are several methods showing the presence of electric charges but the actual measurement of potential is usually made by electro-static voltmeters.

VENTING FOR SAFETY

By H. L. Heinrickson, Terminal Grain Corporation of Sioux City, before Society of Grain Elevator Superintendents

ARE you whistling in the dark? Today, as always this whistling in the dark—as regards our venting problems—is a very sad affair.

Are you saying to yourself something like this: "Never had a dust explosion—probably never will. The odds are against it—so why should I worry. Wishful thinking, this whistling in the dark."



Dust explosions have occurred and sorry to say, surely will occur again. Just when—just where nobody knows. But, in times like these you can help forestall them by proper venting and dust control. Ninety percent of dust explosions start in legs where conditions are ideal and almost impossible to control—for one never knows when the combination of dust, air and a spark might ignite, then spread, causing first a minor explosion, then a secondary, and so on.

By removing the fine dust, this so-called dust in suspension, you remove a major risk. This can be accomplished by ushering out this dust to the open air, through proper venting, thus reducing the possibility of a secondary explosion, then a third, which has been known to cause tremendous damage and loss of life.

Greater Caution During Crisis

WE CANNOT be too careful during this crisis as to the care of the stock of grain and other commodities entrusted to our keeping. Therefore, think of our own plants and see if you can't recall some dangerous places which need venting. Have you any blind tunnels? They are bad! Just dead end streets. Break an opening in the end wall or ceiling and vent them.

Are your basement tunnels vented? Why not? How about your legs at the top of the house? Are they vented? Have you plenty of ventilation on the top floor? Do you see that your whole plant has plenty of ventilation?

I know some of you will scoff and others will say that the price will be too great, but do you stop to think how simple and inexpensive some of this ventilation can be done? Take for instance your elevator legs. It is a very simple and inexpensive process to vent them, also your garnerers and scale hoppers.

Get all blind tunnels open for safety and convenience. Consult some

good venting engineer on your more difficult problems for they will gladly help you. You may save your plant, your men's lives and your stock in trade.

Eradicate This Horrible Monster

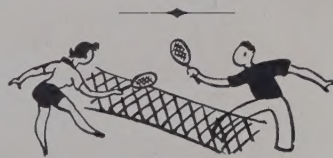
YOUR government code book No. 562: "Safety Codes for the Prevention of Dust Explosion" is available, I believe, by simply writing for it so let's get air-minded in this business of ours and be on our toes to eradicate this horrible monster which is always threatening our lives and plants.

Keep your floor sweeps in good working order and use them. See that your fire heated driers are equipped with reliable automatic dampers for regulating temperatures in your drier and an independent automatic device which will effectively and reliably prevent temperature rises, when to a dangerous point.

Your boots should be dust tight with positive aspiration or vents to the outside. Your belt loaders and dischargers should be vented or equipped with choke feeds. Keep your dust collecting system free and in good working order—having them checked over by an expert and modernized wherever needed.

Have all defective wiring replaced and don't let your men work with poor lighting equipment around your legs. Blow out your motors at regular intervals to prevent heating and sparks. See that there is no friction or rubbing of pulleys which will create sparks in or around your moving belts.

Keep your switches clean and see that all fuses are tight and motors properly grounded. And never throw water on a burning pile of dust as it will scatter the fire. Pick it up in a metal scoop or basket. With proper venting and good housekeeping you can attain a great deal toward our goal of no dust explosions.



SAYS WE ARE WRONG

THE Great Northern elevator at Superior, Wis., the one that blew up and burned down earlier this year, "was not the largest wood elevator in the world as reported," claims Jack Coughlin of Brooks Elevator Corporation, Minneapolis.

Jack says that he operates the largest on the continent and wants evidence, if any can be presented to disprove his claim. He states his plant, the Union Elevator, is 345x90x175 feet high, has nine receivers and nine shippers, and holds 1,800,000 bushels. Can you "top" his figure? If so, let's hear from you.

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New Suction-Venting Code Latitudes

By KENT H. PARKER, Western Actuarial Bureau, Chicago

Before The Society of Grain Elevator Superintendents

THE past ten years have witnessed 56 major explosions doing \$7,500,000 damage and killing 40 persons, yet out of 217 terminals herein studied only 9.2% were adequately protected, 37.8% were partially protected, and 53% had no protection whatsoever. These startling figures should, in Mr. Parker's opinion, stir up rapid action—particularly in face of past inactivity. Other divisions of the industry have stepped out ahead of the straight grain handling group and have reaped a profitable harvest as a consequence.

APPROVED by the annual convention of the National Fire Protection Association, and with the stamp of "Finale" of the Dust Explosion Hazards Committee thereof meeting in Chicago on December first, Subcommittee Chairman Parker's synopsis of the new Venting-Suction Code for Grain Handling Plants now comes to you in its finished draft. Months of intensive study and research went into this work by Chairman Parker, the Chief Weighmasters' National Association headed by genial Joseph A. Schmitz of the Chicago Board of Trade, and Chief Counsel Arthur B. Osgood of The Day Company, Minneapolis—these three comprising the sub-committee charged with the responsibility of preparing this code.

OTHER members of the Dust Explosion Hazards Committee who were particularly helpful in this study included: Messrs. C. J. Alger, Corn Products Refining Company, Argo; J. A. Mull, Van Dusen-Harrington Company, Minneapolis, representing the Terminal Elevator Grain Merchants Association; James G. Hayhoe, Cargill, Inc., Minneapolis, representing the Society of Grain Elevator Superintendents; Eugene Arms, Mill Mutual Fire Prevention Bureau, Chicago; G. Frank Butt, John S. Metcalf Company, Chicago; A. H. Nuckolls, Underwriters' Laboratories, Inc., Chicago; not to mention Committee Chairman Dr. David J. Price, U.S.D.A., Washington, D. C., and Committee Secretary Hylton R. Brown, U. S. Bureau of Mines, Pittsburgh.

WE believe our readers will find this report productive of many pertinent thoughts that will improve operating conditions, maintenance costs, as well as safety to plant, business, and life.

DURING the past year and a half, certain work has been going forward in the preparation of a further step toward a goal that has always been of great interest to the members of this Society. The goal to which I

refer is the prevention of dust explosions in grain elevators, particularly terminals and sub-terminals. The step taken was the tentative adoption at the recent convention of the National Fire Protection Association, after previous approval by the Terminal Grain Weighmasters Association, of a code of good practice requirements governing the application of suction and venting in the control of dust in grain elevators and storage units.

EXPERIMENTS STARTED IN MINNEAPOLIS

IT SEEMS very fitting that a discussion of this code, following its tentative adoption only recently, should be held here in Minneapolis. For it was here that pioneer experiments have been carried out in the adaptation of exhaust systems to the control of dust in elevators. And it was in certain of the elevators here—Crescent "H," Dickinson, and Pioneer to be exact—that further experimental work was conducted by Underwriters Laboratories, Inc., under the auspices of the Committee on Dust Control, in investigating methods and types of equipment that could fairly be said to perform the proper function of controlling floating dust without seriously affecting grain weights. That these experiments and the very detailed reports that followed in 1923 and 1924 did not result in immediate installation of complete dust control systems in all important houses in the country is no reflection on the value of that program or the test information. All developments take time to work out to their proper and logical end.

I hardly need remind this gathering of the mixed and varied reactions that followed upon the use of suction for dust control in elevators. The insurance underwriter was enthusiastic—here was some hope for a clean house. The owner or operator usually thought in terms of installation and power costs—could it be made to pay its freight? The superintendent sometimes saw it as another gadget requiring maintenance. And the weighmaster frequently ordered the thing disconnected.

SOME GOOD; MANY BAD

IT IS not the province of this paper to review the reasons or results of each of these attitudes. Some houses were equipped—some never

have been. In some, only the receiving legs and garnerers and scale hoppers have been equipped. Some installations were well conceived and properly designed—while others were jerry-built or poorly installed with the result that their sole reason for existence seemed to be to put a "blast" on the grain. As an insurance inspector, I have seen installations that were so inadequate that they obviously were of little benefit in controlling dust. I merely mention this because many times installations were made with the best intentions in the world—but failed because they did not have sound engineering behind them.

This was the situation when in the latter part of the 1920's, the Dust Explosion Hazards Committee of the National Fire Protection Association with the assistance and cooperation of the U. S. Department of Agriculture, developed the present Safety Code for the Prevention of Dust Explosions in Terminal Grain Elevators. This Code recommended the use of positive air aspiration or venting for the control of dust at all points where methods of grain handling commonly in use cause dust to be discharged into a house unless proper means are taken to relieve pressures tending to cause such discharge.

\$7,500,000 LOSS; 40 DEAD

BUT even with this Safety Code for guidance, grain elevator properties have continued to have a disastrous number of severe dust explosions, destructive of both life as well as property. In the 10 years ending with 1939, there were a total of 56 explosions involving grain elevators with a property loss amounting to more than \$7,500,000 and causing the death of some 40 persons. This is not inclusive of the loss of the South Chicago elevators in 1939 amounting to over \$2,500,000 and causing the death of 9 people.

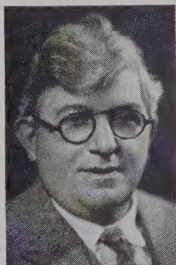
One apparent reason for this frequency of dust explosions can be found in some statistics developed from a recent study of about 217 terminal elevators here in the middle west. Of this number, only 20 or 9.2% had what might be termed complete dust control involving either suction or venting or combination of both; 82 or 37.8% were partially equipped, while 115 or 53% had no form of dust control whatsoever.

ever, other than possibly floor sweeps for use in removing static dust.

Faced with this record, it was deemed advisable that some further action be taken to encourage and direct along proper lines, a more widespread use of proper forms of dust control. It was felt that there need be no insurmountable obstacle to a successful attack on the problem—once the industry, the superintendents, the weighing departments and insurance underwriters could be united in a common effort to develop standards that were reasonable to follow and acceptable from both the standpoint of dust control as well as weight supervision.

ALL INTERESTS CO-OPERATE

THE N. F. P. A. committee in charge of this matter was fortunate to have the full and complete co-operation of a committee of the Terminal Grain Weighmasters Association,



which had been appointed to study the subject. Mr. Joseph A. Schmitz, Chief Weighmaster, Chicago Board of Trade, as Chairman of that committee and representing the committee on the N. F. P. A. sub-committee, gave very generously of his time and experience. There were a number of difficult problems to be considered—on some of which there was and still is an absence of adequate data. Mr. J. A. Mull, representing the Terminal Grain Elevator Merchants Association on the sub-committee was equally helpful. So also was the interest taken by your Society.

The net result—to make our story as short as possible, is the new suction-venting code—as it will be designated for purposes of this paper. The good practice requirements embodied therein are definite in that many details are set up for guidance of both the operator or superintendent, the manufacturer or installing company, the insurance inspector and the weighmaster. With this as a broad foundation to an intelligent approach to the problem of practical dust control, it is hoped that the obstacles that have hindered full utilization of the possibilities of dust control in terminal and sub-terminal properties have been overcome.

TELLS OF APPROVED TYPES

IT SEEMS proper at this point to consider in brief the major points dealt with in this Code, particularly as they are of interest to the operator or superintendent. For purpose of this explanation and to point out the latitudes available, we will assume that you as a superintendent desire to install dust control in some given house previously without protection and with this in mind consult this code as a

guide to the proper procedure and the type of installation that will meet with approval.

The first thing the code will tell you is that it supplements the existing Safety Code for the Prevention of Dust Explosions in Terminal Grain Elevators—and does not supersede it. This seems logical because the parent code whether for terminal, mill or country elevators—is a complete instrument dealing with the special problems of each type of elevator. What is proper for a terminal or sub-terminal may not be necessary for a mill elevator or a country house. We will assume you have a terminal house.

The next important point is that the code is applicable to new or unequipped houses—not to existing equipped houses. However, it is available for use for any property where it is desired to install equipment meeting with approval of authorities having jurisdiction—that is, the weighmaster, the insurance inspector—whoever is interested in its application.

NO "HIT-OR-MISS" INSTALLATIONS

THE code now hits your pocketbook. It requires a complete installation—not just a partial or "hit-or-miss" installation. A chain is no stronger than its weakest link. If dust control is only provided for a few points—the remaining unequipped points are a serious deficiency in the effort toward dust control. Free and uncontrolled floating dust from any source can nullify very largely the value of the points protected and will result in deposits of static dust that are ripe for propagation of a secondary explosion. Furthermore, it is not the province of this code to justify the use of suction on part of the handling equipment only, a practice in the past that has led to much of the criticism on the part of weight supervisory officials.

There is no logic that can sustain the installation of dust control on receiving boots, heads, garners and scale hoppers that is not equally applicable to every other point in the house where dust clouds may be released. If weighing departments are to be justified in their acceptance of suction or venting at points that can conceivably influence weights, they are assuredly entitled to believe that the desire to eliminate the hazard of floating dust at these points should be part of the broader problem of control at all principal points. This is not to discount the fact that there are exceptions to every rule. However, the code presupposes a whole-hearted effort to install complete protection—which is prerequisite to the control of all light floating dust and the elimination of large deposits of static dust. All right, we will assume that whatever hurdle exists from this standpoint has been surmounted.

THREE METHODS OUTLINED

IN SOME instances, chiefly mill or processing elevators but occasionally in the terminal class, grain is

handled by fully enclosed mechanical or pneumatic conveying systems. As the code requirements are applicable primarily to grain handling methods employing bucket-type elevators and belt conveyors, latitude is provided for adapting its provisions to conditions where methods of grain handling do not release appreciable quantities of floating dust. We will assume, however, that your elevator is typical of most terminal houses where speed in grain handling is the primary consideration.

The code now outlines the two or we might say three methods of dust control that are suitable. Suction or positive air aspiration is the principal method and is suggested for every point where it is not feasible to employ other methods of relieving pressures that cause the escape of dust. The alternative methods are the use of vents from bins, heads, garners and scale hoppers and other enclosed equipment, or by-passing of pressures by the use of inter-connections as between garners and scale hoppers. We will assume that your tentative plans call for a combination of all these methods.

The code now requires that complete plans and specifications for the installation of suction where it may have possible effect on grain weights should be submitted to and subject to approval of weighing departments having jurisdiction where supervised weights are in effect. The installing company can perform this service, inasmuch as it will have prepared detailed plans and specifications as to hood connections, pipe and trunk line layouts, air velocities, inspection traps, etc., which will serve as a correct indication of the proposed installation as it affects the interest of the weighing department. Furthermore, if changes are neces-



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"Well, you would live in a modern elevator!"

sary, now is the time to consider them rather than after the installation is made.

PURPOSES THREE-FOLD

THE code merely lays down rather broad lines to be followed in the design and installation of suction systems. It requires that such systems shall be designed solely to relieve excess pressures and to collect float-

ing or static dust created by grain handling equipment. It permits direct connections to suction hoods, as opposed to indirect connections that have sometimes been required in the past. The indirect type of connection where the suction hood is near, but not connected to, the enclosed equipment has not always proved satisfactory from a dust control standpoint. However, the direct connected hood may require additional safeguards in the form of velocity control devices to insure that there is proper and adequate control over maximum suction that can be applied.

Suction hoods are required to be of an approved design, and to be properly installed to avoid solid grain being thrown or discharged into the hood. A good deal of latitude is injected here, as it was not felt practicable to lay down any general standard as to relative dimensions of hoods for all purposes. Bulletin No. 1373 of the U. S. Department of Agriculture, as well as Underwriters Laboratories' pamphlet entitled, "Control of Floating Dust in Terminal Grain Elevators," a digest of the result of the investigations conducted here in Minneapolis, both give many good suggestions on the dimensions and location of suction hoods for different situations. It is believed the best plan, however, to engineer the design of the hoods to meet conditions at each elevator. With proper design and with the control that can be exercised over velocities at each connection, through adjustment of pipe sizes and the provision for blast gates or other suitable control valves, an installing company should have no difficulty in obtaining correct results.

500 F.P.M. RECOMMENDED

THE code recommends a limit on the average face velocity at intakes of suction hoods (other than floor sweep intakes) of 500 feet per minute. This velocity is well below velocities that pick up solid grain, provided a properly designed hood is used, and on the other hand is sufficient in the usual case to collect floating dust at belt loaders and discharges, and to maintain a slightly negative pressure in boots or other enclosed equipment. Where higher face velocities are re-

quired by local conditions, suitable adjustments may be necessary.

In so far as velocities in suction pipe lines and ducts are concerned, the code merely recommends that they be sufficient to keep in suspension the material normally carried by the system. It is seldom that velocities need exceed 3600 feet per minute, and the lower the velocity the less is the power cost. With floor sweeps interconnected to the dust control system, proper design and integration of the system by competent engineering is the answer to maintaining the velocities necessary for transport of grain picked up in the sweeps while avoiding higher costs for the dust control system proper.

We have so far considered only suction. What about venting? This is an equally important phase of our dust control system, and should appeal from an economy standpoint, particularly as once installed, no further costs accrue from operation.

VENTING LATITUDES GIVEN

THE code states that inspection authorities having jurisdiction may require heads of receiving legs, garners and scale hoppers to be vented in lieu of positive air aspiration or in other words, in lieu of suction. You as superintendents probably are willing to rely on venting for these points anyway, as venting is a perfectly satisfactory form of dust control for these situations. In fact, as under operating conditions, there may be a flow of air into the head rather than out, suction at such a point is not necessary. However, weighing departments may require venting for these locations, even though suction is permitted elsewhere. The latitude is there for this type of dust control, whether or not it is required by the weighing departments.

The previous Safety Codes have always recommended the use of vents on heads, garners and scale hoppers, and bins, but did not specify any particular size or arrangement other than that bin vents should have a diameter not less than 12 inches. The new code recommends that vents have a minimum area equivalent to a round opening 12 inches in diameter, or larger. Where the elevator is designed to handle in excess of 5,000 bushels per hour, vents for heads,

garners and scale hoppers should be equivalent to a free area of 1 sq. ft. for each 5,000 bushels per hour of rated capacity. Quick emptying garners may require larger vents for scale hoppers, depending on the rate of discharge. In general, this will mean larger vents than have been installed in many cases in the past. However, it will also mean the relief of pressures at low velocity and will mean a more satisfactory control of dust in the head house. In many of the modern houses, elevator heads are extended through the roof and capped with ventilators that serve the additional purpose of relieving pressures in the event of an explosion in the leg casings. This type of vent is also quite acceptable under the code for the purpose of dust control.

INSPECTION TRAPS REQUIRED

BEFORE we take a quick look at our complete plans for a full dust control system in our ideal elevator,—there are two further precautionary requirements that should receive due attention. As part of our dust control system, and in order to place the application of suction under proper supervision, authorities having jurisdiction over grain weights may require the installation of inspection traps of approved design in branch lines serving dust collecting hoods when in their judgment this is necessary to insure that nothing but the light floating dust is being collected where grain is subject to weights. The design of these traps is simple—merely an enlargement and baffle so that the velocity of air moving through the trap is sufficiently reduced to permit of material heavier than dust to be deposited at the bottom of the trap. These traps in conjunction with velocity control devices, capable of being locked in any desired position, may be required in branch ducts serving receiving belt discharges, boots, etc.

A refinement of this same principle—and in many respects a more complete type of supervision—is the practice of connecting suction hoods at these locations to separate collectors arranged to discharge their contents back into the grain stream. Under this arrangement, weighing departments are assured that no material other than the light floating dust that

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may exhaust from these collectors is being removed from the grain. This optional method is likewise provided for in the code.

SUMMING UP

FROM the foregoing description of certain of the essential features covered in the code, let us complete a rough sketch of the dust control system for our hypothetical modern elevator.

Starting at the car dumper, suction will be applied to the receiving sinks and to the belt loaders. The dust picked up at these points will exhaust to separate collector located at that point and discharging its contents back onto the belt. Next, any discharges between the car dumper and receiving boot will also be equipped with suction hoods, above and below the grain stream. The boot itself will be similarly equipped, the hood connection preferably located between the legs. Branch ducts to these connections will also either be provided with inspection traps and velocity control devices, or arranged to discharge to a separate collector feeding back into grain stream.

Our heads will be vented; we will assume the weighing department has also requested that venting be used for garnerers and scale hoppers. In our case, it is decided to by-pass the vent from the scale hopper to the garner, with but one vent from the garner to outside. The arrangement and size of the vent connections must be such that discharge of grain into the garner will not develop back-pressure on the scale hopper. Adequate pressure relief is also important or we will find dusting-out from the canvass connection even though every effort has been made to keep the connection reasonably dust-tight. Beyond the scale, of course, the weighing department ceases to have any direct interest in the effect of dust control on weights.

DISTRIBUTING SPOUTS: SUCTION

DISTRIBUTING spout connections can release a good deal of dust. The code recommends suction, although this is merely advisory and there are many cases where it would not be feasible. Belt loaders, transfer points and trippers, are next in line for suction hood connections.

A good deal of time and effort has been given to devising methods of equipping trippers with suction. In many houses they still remain one of the few spots unprotected. The older type of equipment with a self-contained fan unit and collector mounted on the tripper is expensive and a little cumbersome. In lieu of this, some have flexible connections that can be made to a central suction pipe at whatever point the tripper is stationed. The latest development along these lines seems to have licked both operating and maintenance problems.

The code encourages the protection of trippers in one way by not requir-

Active at Kansas City



Roy Harp, Wolcott & Lincoln, Inc.



Wilber Holte, Car-gill, Inc.



Guy Ferguson, Uhl-mann Grain Co.



Frank McDermott, Rodney Milling Co.



Clarence Swearin-gen, Moore - Seaver Grain Co.

Victory

**OVER PESTS THAT
THREATEN FOOD
SUPPLIES IS A "MUST"
IN THE WAR EFFORT**

**This is no time to let Weevil
and Moth team up with our
country's enemies!**

Larvacide

CHLORPICRIN

and LARVACIDE Methods have a record of more than seventeen years' success in Granaries and Mills of every size and type. The LARVACIDE Pest Control Program is simple, direct, economical.

- 1—Treat all Infested Grain in storage and in transfer. The cost is small—only \$1.50 to \$1.70 per thousand bushels in closed concrete bins (based on dosage recommended by U. S. Dept. of Agriculture).
- 2—Keep Bins Clean—Treat bin bottoms and bin space with a quart or so (for average size bin) splashing through top opening. Do this on weekend.
- 3—Treat Bin Tops for Moth—Sprinkle a quart or so on grain surface. Mask and sprinkler bottle (or sprayer) are the only equipment needed.



ALSO FOR RODENTS

Regular use of LARVACIDE for Insect Control, usually puts an end to the Rodent problem . . . and without carcass nuisance. For rodents alone use light dosage, a generous pint or so for each thousand square feet of floor area.

Larvacide is

CHLORPICRIN

stocked in major cities and at our branches listed below. Write for folders on control of every type of granary pest. LARVACIDE is shipped in cylinders 25-180 lbs. and 1 lb. bottles, each in safety can, 6 or 12 to wooden case. Bottle is especially convenient for rodent work and other small jobs in the elevator or on the farm.

INNIS, SPEIDEN & COMPANY

Established 1816

117 Liberty Street, NEW YORK

CHICAGO	•	CLEVELAND	•	CINCINNATI
BOSTON	•	PHILADELPHIA	•	OMAHA

ing suction hoods at ends of belts when trippers are provided with suction connections. In other words, it is expected that the tripper suction connections will pick up the "tailings" that normally would be carried over at the ends of belts. Another advantage of protecting trippers is that suction connections to tripper discharge spouts can be arranged to also provide relief for pressures developed in bins or tanks by discharge of the grain—in which case separate suction or vent connections to these bins or tanks may be omitted. Otherwise, we should expect to provide suction or vents on all bins or tanks, including work house bins where practicable.

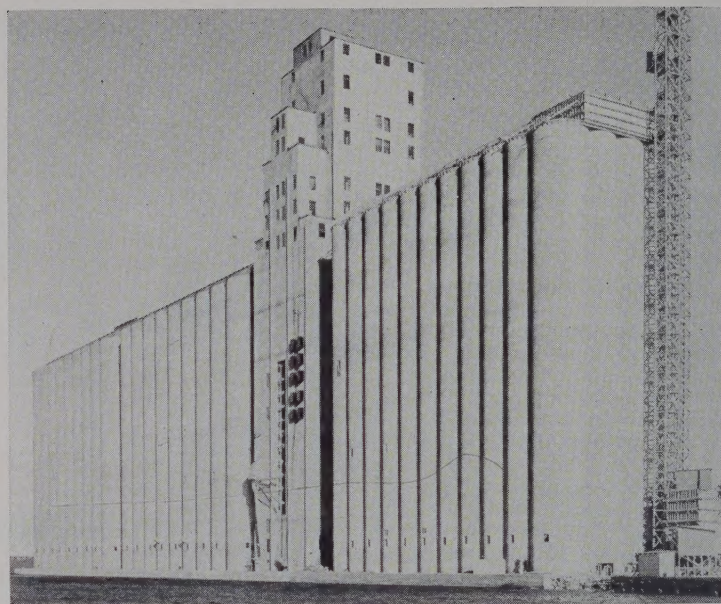
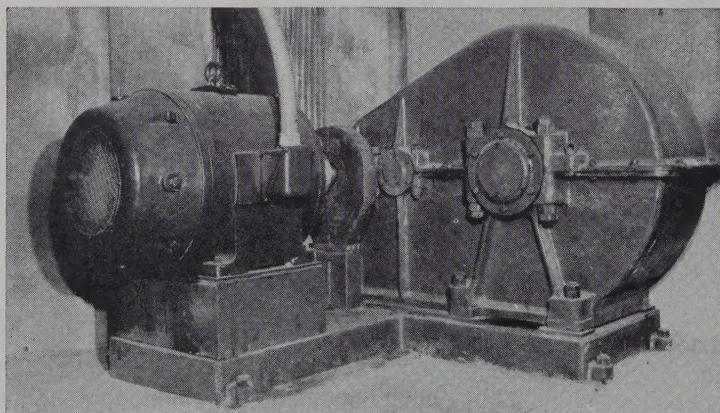
We have not covered loading out of the grain, although, naturally belt loaders, discharges, shipping legs, etc., require the same protection already outlined for a complete system. Cleaners, clippers, scourers, etc., should also be connected to the dust collecting system.

FOR STATIC DUSTS

FINALLY, our house should have a system of floor sweeps (or a permanent vacuum sweeping system) to provide adequate means for the removal of static dust. Sweep intakes should be distributed throughout, including the galleries and tunnels of tank groups, so that all parts of the property are convenient to an intake.

The present emergency and the interest being taken in conservation of all our resources, may well result in more attention being given to the prevention of dust explosions in terminal properties. It is of particular significance at this time that there are available methods, approved by all parties at interest, of installing as complete protection as possible against the hazards of floating and static dust. The new suction-venting code gives the latitude. It is the earnest hope of everyone associated in the development of this code that you, in your positions as operators or superintendents, may be able to translate the written word into action.

Do today what should be done today, for tomorrow has its own duties



1769 Carloads of Material Go Into New FUGTA Terminal at Superior

EXACTLY 1,769 carloads of material were required in the construction of the 4,500,000 bushel Farmers Union Grain Terminal Association's Superior (Wis.) marine house. Termed the tallest in the world, the reinforced concrete bins are 160 feet high with 30 foot diameters. The headhouse is 270 feet.

Equipped with a Richardson Car Dumper, the grain is handled on three 54-inch 25,000 bph belts, each leg powered by a 200 hp Fairbanks-Morse motor through double-reduction Link-Belt herringbone gear speed reducers shown in the accompanying illustration. A leg for truck grain is operated by a 30 hp motor.

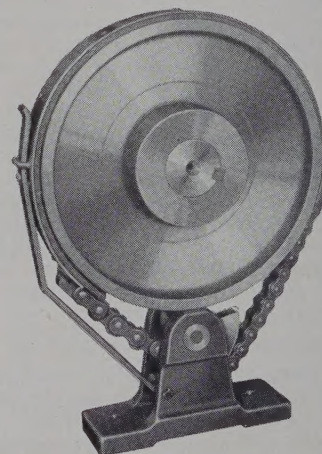
Each leg is equipped with a L-B differential back-stop of the automatic band brake type (illustrated) to prevent backward movement should the "juice" be cut off from any cause.

Five spouts discharge from shipping bins in the workhouse, same having capacity of from 8,000 to 15,000 bushels each.

Manager Matt Sauter and Super Russell Johnson are both mighty

proud of the record they made in operating the plant while construction was in progress without a single lost-time accident—for which they won one of the SOGES safety trophies. Both feel they have the best plant on the face of the earth.

McKenzie-Hague Company's contract resulted in the installation of



Zeleny thermometers for quickly determining the condition of grain in store; a most modern Day Company dust control system, and Fairbanks-Morse motors throughout. The Minneapolis and Fort William-Port Arthur Chapters of the Superintendents Society anticipate holding an inspection tour through Lake Superior's newest just as soon as conditions permit.

Sorry He Missed

SORRY I missed this year's convention. Was so busy I didn't even get to sending you a line before you got to Omaha.—Edward E. Frauenheim, Jr., Buffalo (N. Y.) Forwarding Corp., Director SOGES.

ELEVATOR SALVAGE

By Jack Coughlin, Superintendent Brooks Elevator Corporation, Minneapolis, before Society of Grain Elevator Superintendents.

NO matter what precautions are taken it does not seem possible that elevator fires and dust explosions can be completely eradicated. However, hand in hand with the rapidly advancing fire precautions the Elevator Superintendents can take a major part in minimizing the loss from the fires that do occur.

Elevator Superintendents are or should be interested in low insurance rates. One way of keeping them low is by preventing maximum loss to the grain after a fire.

It would be impossible to discuss the procedure followed in actually salvaging a loss. The condition of no two fires are alike and only very general rules can be maintained even by those who have had long experience in the salvage jobs—and these are susceptible to more exceptions than rules.

Of course, some part of the grain is actually consumed by the fire. The remainder of it is damaged by debris, exposure and especially by water—which causes the most damage. We have found that we get much better salvage and it "bushels out" better in country fires where there is no water or the water supply is limited. Grain itself does not burn unless there is a strong draft or wind to fan it.

Elevator Superintendents who are confronted with a fire can best diminish the loss by doing all they can to see that only enough water absolutely necessary to control the fire is used. Furthermore, intelligent co-operation between the fire department and the salvage operator can prevent the pouring on of thousands of gallons of superfluous and damaging water. Remember within reasonable limits the less water the better for handling the fire and the less the loss from water damage.

If you are a Superintendent for a salvaging company you are faced with the job of drying, cleaning and conditioning the grain. This end of the job is no less important than the salvaging operation itself and the better it is done the higher price the processed salvage will bring when it moves into the ordinary channels for feed.

As all know, fire burnt grain is unfit for human consumption, so it goes into the cattle or stock food. The more money the salvage brings the less loss to the insurance company, and this in turn goes back to your insurance rates.



So, these three different steps: an intelligent job of fire control by the fire department; secondly, the operation of an experienced salvage crew, and thirdly, the job of efficiently processing the salvage grain for the market. When the optimum of all three are found coactive with the best fire preventive methods, losses from these disasters will drop and insurance rates will follow.

PROLONGING CABLE LIFE

By C. A. McIver, Assistant Superintendent of Elevators, Archer-Daniels-Midland Co., before Society of Grain Elevator Superintendents

AT ONE of our Minneapolis elevators we had, for several years, encountered serious trouble with a car-puller which was so abusive to cables that their life usually was only from two to four months. The car-puller was installed under the track and the lead from the sheave to the drum was short and at right angle to the direction of the track. The short lead caused the cable to climb and pile against one side of the drum, and on several occasions resulted in cracking the flange of the drum.

In order to overcome our troubles we overhauled our car-puller last year and swung the steel base and the complete installation 90 degrees. It was also elevated closer to the track shed floor and anchored to a reinforced concrete foundation. The cable now reels onto the drum parallel to the direction of the track, whereas it formerly made a sharp 90 degree bend over the lead sheave, it now makes only a slight bend at an angle of about 150 degrees from the horizontal plane.

The new sheave is keyed to a shaft which turns in bronze-bushed bearings mounted just beneath the floor. The shaft slides freely from one end to the other and helps the cable to level-wind more evenly on the drum. With the drum closer to the floor we installed an inspection hole, protected by a grating, which permits the operator to watch the cable on the drum at all times. The gear ratio of the drive has also been revised so that now the cable reels up on the drum at a rate of only about 65 feet per minute. These changes have resulted in smoother operation and much longer life to the cable.

LUBRICATE CABLES FREQUENTLY

FREQUENT use of lubricants increase the life of car cables and shovel ropes. Raw linseed oil mixed with pure flaked graphite has been found best. In using same it is necessary to apply oil alone a half-dozen times within a half-month first. Mixed dressing should go on as often as needed to keep marlin from getting hard and dry.

CUT PHONE CALLS SHORT

ANOTHER way to help the United Nations win this war is to resist that impulse to call friend Joe over long distance telephone. Even necessary local calls must be cut short, the telephone company itself advises.

Long distance lines are terribly busy these days carrying vital messages for the government, Army, Navy and thousands of industrial plants turning out war material. Regardless of greatly expanded facilities, the great surge of calls resulting from the war effort overcrowds the main lines. The copper and other materials for additional service must necessarily go into shells and planes instead.

Fewer local calls, shorter conversations, etc., permits spreading skilled operators over more territory. Urgent "war effort" long distance calls should be confined to 12:01-2:00 p. m., 5:00-7:00 p. m., and after 9 p. m. to 7 a. m.

TREASURY DEPARTMENT THANKS ADVERTISERS

"AS it is impossible for us to express our thanks personally to all the sponsors of War Bond advertising, I should be very grateful if you would convey to your advertisers the Treasury Department's appreciation for the very real contributions they have made and will be making in the future to the success of the War Bond program."—E. R. Sloan, Executive Director, War Savings Staff, Treasury Department, Washington, D. C.

STRATTON ELECTED DIRECTOR

Mr. Harry M. Stratton, President of Stratton Grain Company, Milwaukee, and Vice President of Briggs & Stratton Company, Milwaukee industrial firm, on July 15th was elected to the board of trustees of the Northwestern Mutual Life Insurance Company by policyholders at the annual general election. Mr. Stratton is an Honorary Member of the Superintendents' Society and President of the Terminal Elevator Grain Merchants Association.

DEFERMENTS FOR US

SKILLED key employees not readily replaceable should be definitely deferred, according to a recent announcement by the Selective Service System. In this group fall workers in producing, handling and processing agricultural products, according to Ray Bowden, Washington, D. C.

Liked Report

The Convention issue of "GRAIN" came to hand and I think it is a very fine issue.—Jack Gibson, Hallet & Carey, Ltd., Fort William.



Booster Bill's on the Loose Again

"Cut it" snapped Bill, and for a minute I had to think twice to remember he wasn't a movie producer.

"All right," I proffered, "what's the beef? Who's dealing off the bottom of the deck?"

"**N**OW looka here," Bill put in, ignoring me as though I hadn't said nothin', which is probably right. "Last week the wife's thirteenth grandchild spotted another string of empties... triplets, to you. Well sir, that shoulda been cause for rejoicement, et al. Course, me, I'm getting tough and used to it by now—all except them whopping big hospital bills they send you these days so's you won't forget it quite so quick as we did back yesteryear. [~] but the little lady, no-o-o sir-e-e-e. In her language that's an important event on my life too, she tells me. Least-aways we piles into the 'duration crutch' we parks in the barn—I mean garage, excuse please—and hytails about 700 miles out thataway."

"Oh," I butts in, "a birth item we missed, I'll phone it right in."

"Sorry," Bill sez even before I could get the last words out of my mouth. "Maybe I AM getting a little bit sedimental"...and his eyes flashed at that pun. "But what I had in mind was that while we wuz rushed on the going trip, yet on the way back I just decided that Ma's knitting circle wuz going to miss her that week and we'd finish it out calling on some of the boys we meet at conventions year after year."

"What didja do, lose your old roller skate aplayin' poker?" I prodded.

BILL certainly knows how to make a guy feel as though he ain't around, 'cause he just pulled his bin as unconcerned like, recorded the draught and looked into the distance. I wuz all for pulling up a rocker and catching up on what I been missing lately, but Bill had other ideas.

"Now down in Kansas City," he starts, "I drops in on a string of elevators, flour mills, feed plants, and so forth. Didn't know whose they were...that is those that weren't marked at least. And I did run into a couple of swell guys that never heard of me before...and," Bill chuckled a good belly chuckle—the kind that are hard on tight belts such as he doesn't wear... "they probably never will want to hear of me again after what I asked 'em when they told me they wasn't members of the Superintendents Society."

"But finally I got around to Ted Manning's Wabash Elevator. Well of course I've known him for years. Used to be president of the S.O.G.E.S."

Still as active as he ever was and planning to be more so as the opportunities offer. From then on it was smooth sailing. After Ted and I got through ironing out all the association's problems, Ted calls up a lot of the boys and we have lunch together.

"**A**MAZING ain't no word for it brother. Why the number that came out and the enthusiasm demonstrated just made me feel as though I was one of them new born triplets instead of their grandpappy. All the boys proudly told me of their chapter activities down there, about how well they're getting along, how they're not only holding their membership but are adding new ones slowly and steadily when the applicant proves he's one they want."

"Latest thing they've done down there, if you please, is to all take a week-end outing together—like the Chicago boys is doing on July 11th and 12th—and brother was it successful! Eric Matson's the new president and O. B. "Big Dunk" Duncan is secretary, and boy howdee, are they calculatin' on showing up the rest of the chapters on membership, programs, attendance, and all that sort of necessary rigamaroll. Why would you believe it, they turned over an application blank with the check to me right while I wuz there. Wouldn't even tell me who got it. Said they all did and that they wuz going to get a lot more."

"Wish you had time to listen to what all the different boys had to tell me, particularly Bill Kamp, and Claude Darbe, and Charlie Peterson, and Harley Hixson...yeah and that association director down there is a comer, too, if I ever saw one. Name's Jim Kier, I think. 'Course they got an all 'round swell bunch there and they're expecting to take a crusade in their cars and visit the Sups at Topeka, Atchison, Leavenworth, and St. Joe before they run out of rubber."

"**W**ELL sir, then I kinda hankers to go outa my way a mite and tell the Omaha boys what a swell convention they and their bosses put on for us last April, and so I did. And do you know it, Prexy Charley Walker had a signed application blank and a check for me sitting insultin' like right on his desk—just as though he knowed I was coming by."

"Humphhh," I pipes up, "wish we reporters could get a snap like that...we'd never be out wondering where expenses wuz coming from."

"Well I did a repeat there in Omaha, too," Bill continues deaf-like. "Did my heart good. Went through a lot of the houses and picked up three of the slickest power saving

"**I** WANT to know," Booster Bill thundered at your inquiring reporter, "why more Supers don't take full advantage of their natural opportunities?"

The little tornado had me floored for a minute I must admit, because the big boss assigned me to find out what was at the bottom of all of his rambunctious spoutings here of late. I kinda thought I'd lead him on gently, however, rememberin' how fiery and excited he is when anyone gets him started on his pet peeve...you remember what it is—why more of the Supers don't take an increasingly active part in their association. So I sez: "I s'pose you mean why they don't lay ten bucks down on the line and then lean back in their easy chairs and hibernate for another year?"

Bill gave me a piercing glance, swashed his cigar butt over to the other side of his mouth, cleared his throat a bit harshly and allowed as how he'd get into that phase of the conversation without any prompting from me.

"**B**UT what strikes me so forcibly," Bill went on, "is why more of the boys don't get out of their own baliwicks and go count cobwebs and dust piles in the other fella's house...you know what I mean—why Joe and Tom and Ed don't come around and see me at my plant... why they don't take a week off just like I did here recently and pick up a few good pointers from the other fellas."

"Oh," sez I, "so you shoulda made the Society column with your travels and didn't, eh?"

PREFERRED!

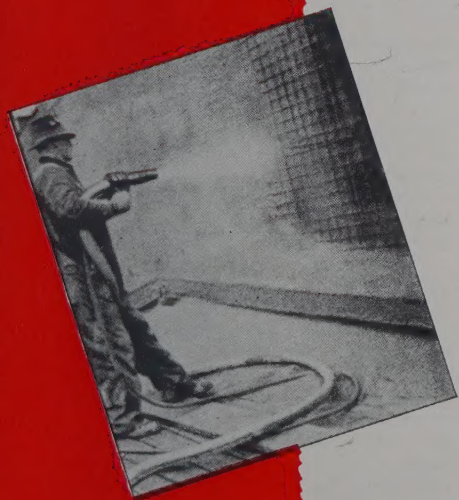


SUPERINTENDENT WILLIAM H. GASSLER SAYS:

"As far as we can determine at this time, the workmanship and materials used on our Calumet Elevator last summer have proven quite satisfactory."

Caulking operations are shown in the center view; at the left the walls are being prepared for our elastic *Surfacite*—which is shown being applied in the view on the right.

Surfacite *Waterproofing*



... Preferred because all disintegration and cracks are repaired with GUNITE, which is stronger than concrete, is hard, dense, waterproof with perfect bond to the old concrete.

... Preferred because then all surfaces are covered with the soft, elastic material—SURFACITE—many times the thickness of ordinary waterproofing.

... Preferred because SURFACITE compensates for movement by a tough elastic hide and with a long-life flexible material bonded to the concrete.

You, too, will PREFER our services after we have gone over your problems, submitted facts, ideas and costs.

JOHN D. BOLTON -- GUNITE CONTRACTOR

20 NORTH WACKER DRIVE

CHICAGO, ILLINOIS

ideas you ever saw. Now I'll admit that some of the boys have been busy and their plants ain't quite as clean as they wished they wuz when they saw me, but than I gave them a good hint or two on the latest developments in dust collecting paraphernalia—and wuz they glad to hear about it."

"Whatya doing," sez I, "peddlin' on the side?"

"Now looka here," Bill counters, "you ain't no dust collection engineer and I just had my system brought up to date by that Osgood guy. Now I'll admit I don't know nothin' about why it does the good job it does—all the difference between night and day with the old system—and it didn't cost much to revamp neither."

"**B**UT as I wuz sayin' before I wuz so rudely interrupted, I saw Johnny Goetzinger, he's the secretary for 'em out there, and Herb Sales, and Jerry Lacy, and oh lots of swell gents. Those boys, and they're the newest chapter mindja, they've got a bigger percentage of all eligible Supers in their entire area than even the 11-year old Chicago Chapter, by golly. They tell me they're going to see that everyone for a hundred miles around hears so much about their activities that they'll all be knocking down the doors atryin' to get in—and they're doing a good job of it. They point with pride to Gerald Ehernberger away out at Schuyler, Neb. He's a member of their unit. Doesn't get in for all of the meetings, but the boys tell me he wouldn't give up his membership for the world."

"Well after nosing eastward things was kinda uneventful, least 'til I gets to surprise Herb Brand at Cedar Rapids. Herb's vice prexy of the association and is he ever fretting and stewing about his baby—which is membership. Herb's been up and at 'em hisself, but he tells me he ain't entirely satisfied with the results nor with all the co-operation he feels he has a right to expect. Seems as how he wants to double the membership overnight, but 'Shux Herb,' I tells him, 'if you kin get all the faithful ol' wheelhorses to pitch in one new member apiece your problems are solved!'...and they sure would be too."

"You see a highly specialized association like ours is made up of technical scientists." Bill paused meaningly and shot me a twinkling look...

"**I**'M sorry Mr. Booster," sez I "but I've got to get back to the office and hunt up some live, spot news. S'long and good luck with your night mares."

"Now you just looka here," Bill retorts. "All I was going to tell you was that no matter what line of business a guy finds himself in, he CAN improve his lot, as well as that of his employers, if he'll only fight off that rockin' chair onest in a while at least. Why while I was leaning back sympathizin' with Herb Brand about what a job he had corraling new members,

who calls up but Mal Noxon of Minneapolis. He's secretary of our safety contest committee...and was he enthused about reporting more entrees so far this year than during all of last. Sez anyhow the Sups are going 'over the top' on safety."

"And would you believe it, in piles another call right smack on top of that one, from Paul Christensen. He's from Minneapolis, too. He told Herb to quit muttering in his beard because he just heard that the bosses, bless 'em, wuz going to help the Sups print their new Safety Manual. Well I thought the conversation would never end. Both of 'em wuz so excited inside and neither of 'em ever show excitement that I was expecting to hear an explosion come over the wire and to experience one where I sat...Paul told Herb about the new dust collector on his drier too...sez its the berries."



"**W**ELL time's short so I grabs up the missus and we start out to try and get on east of the windy berg—that's Chicago—before nightfall...but when I rolls into the outskirts and set my peepers on a couple of good looking plants and better looking supers...then all plans went skatting...So I looks up Prexy Lane, Bill Gassler, Bill Radke, Emil Buelens...you know the bunch that always gets behind the conventions...lot of 'em there, too, and they're all swell boys... 'Course I feel it's too bad they're in so gol' darn many kinds of businesses from soup to nuts as grain handling and processing goes, but they all tolerates one another better than any bunch of cats and dogs I ever did see."

"I kinda expect these boys are sorta coasting on their glories of getting sixty active members in their chapter, but chapter prexy Ed Josephson and king Lane sez I'm all wet...sez they got some more good tim-

ber to cut and just as soon as they get some competition they'll fight for their honors of being first. Well, we'll see, but I don't figure them boys will give an inch...I really don't."

" 'Course they all told me 'bout their initial plans and arrangements for next year's convention, and it sure sounded good to my hearing pieces."

"**F**INALLY the missus can't stand the dirt and noise any more (but confidentially I think it wuz them department stores and shows) so we hobbles along on homeward. If it hadn't abeen Saturday afternoon I suppose I woulda stopped at some more places along the line, but mother wanted to get rested for church in the morning, and I was somewhat concerned about them south bins leaking a bit...and I knew that danged old corn I got might be kicking up with me away. 'Course the boys coulda read the thermometer thing-amajig and knowed when to do something with it, such as givin' it a bug juice 'hypo,' but I was kinda glad mother insisted at that."

"But what I'm atellin' you is that I'm aquitting this here hermit's life I been leading. I swear I think it's a lot easier and more comfortable being one, but doggone if I kin get the kick and appetite for livin' and scratchin' around when I acts like 'em. 'Course I been an active association booster for years...well ever since the association got started. Never held too many jobs in it, and I truthfully regret to say that I didn't do the job I wished I had on some of the committees I wuz on...thought I wuz too busy, I guess...but brother from now on things is going to be different!"

BILL slammed his fist down on the desk so hard he not only woke me up, but the jar was so sudden that my elbow—on which my hatrack was parked gave 'way and I awkwardly landed in the most contortious heap conceivable. Danged if that didn't make me mad. Here I was peaceful, comfortable and the like, not harming a soul, and certainly not ranting on like Bill wuz. And what does he do but a Houdini in reverse by remote control."

Well, after I dusted myself off—and there wuz more of it than I want to see again despite Bill's preachings—I tries to square myself away in my gladrags before hoofin' it back to the copy desk. But Bill, does he even admit seein' my predicament?... Naw, he just tells me as I'm going out the door that hermits never live a fruitful life...which he sez applies to some supers he knows what doesn't join his Sassietee...Sez, too, he's made a list of all the good ideas he's sucked up his dust collector last few days from the association boys, and he's rit 'em down for the boss to see so's Bill kin maybe take another trip 'fore too long. Maybe Bill's business needs that sorta thing, but geewhillikers my rockin' chair travels forward fast enough fer me."

MOUNTAINS OF HEALTH!

(The Cover)

WE OBTAINED permission to publish this unique photograph of the Gooch Milling and Elevator Company, Lincoln, Nebraska, feeling it is one of the most intriguing we have seen.

Gooch's President, Mr. F. E. Roth, accomplished the unusual montage effect and it took seven pictures in all, properly enlarged as to size and shade, to create the effect you see here.

Of the finished picture Mr. Roth says, "Maybe such things aren't permissible among professional photographers, but as an amateur I have no hesitancy in doing anything I want."

Amateur, indeed!

RECORD STOCKS OLD WHEAT

STOCKS of old wheat in interior elevators, warehouses and mills on July 1st is estimated by the USDA to total 141,789,000 bushels,—the largest on record. This figure is almost double the 73,789,000 bushels held on July 1, 1941, four times as large as the 1930-40 average, and it does not include stocks in merchant mills nor in 46 markets.

ODT RELEASES BOTTOMS

NINETEEN boats and two lake barges were recently released for transporting grain on the Great Lakes by the Office of Defense Transportation. These bottoms are unsuitable for hauling ore.

When the ore boats have accumulated a surplus at steel mills, some of them likely will be made available to the grain trade. Meanwhile, any grain shipper desiring a boat can obtain one by contacting ODT.

CARLOADINGS HOLD LEAD

Cars loaded with grain and grain products during 1942 have, in spite of the embargoes currently placed against shipments, exceeded movement figures for the past two years. Loadings were, for the weeks ending:

	1942	1941	1940
June 13...	34,686	37,006	30,456
June 20...	38,946	46,574	33,656
June 27...	44,066	52,931	44,778
July 4...	42,340	50,921	47,628
July 11...	53,509	62,695	56,457
July 18...	51,558	61,396	53,179
Half-year..	979,773	903,260	825,479
29 weeks..	1,127,180	1,078,272	982,743

Grain Exports Stifled

Cars of grain for export unloaded at Atlantic, Gulf, and Pacific ports during the first half year totaled, 16,594, compared with 24,476 last year, or the surprisingly small decrease of 32%. Cars unloaded in June totaled 1,799 compared with 4,230 last year.



BUY WAR BONDS AND STAMPS



INVEST REGULARLY

DO YOUR SHARE TO PRESERVE
THE AMERICAN WAY OF LIFE

MAKE EVERY PAY DAY "BOND DAY"

We are proud that our employees have subscribed 100% under the Pay-Roll Savings Plan for the purchase of War Bonds.

Screw Conveyor Corporation

707 HOFFMAN ST.



HAMMOND, IND.

SCREW CONVEYORS

ELEVATOR BUCKETS

TRADE MARK REG.

PRODUCTS

U.S. PAT. OFFICE

HUGE CANADIAN CROP ON WAY

THE 1942 harvest of wheat in the western provinces may reach 400,000,000 bushels, states James A. MacKinnon, Dominion Minister of Trade. With almost ideal growing conditions reported, except occasional spotted hail damage, the wheat plants are heading out from 20 to 30 inches in height. Storage facilities are available for only 200 million.

WHEAT GRIND OFF MORE

FOR the fourth consecutive month the wheat grind fell off from the preceding month's figures. From the 43,611,451 bushels ground by 1093 flour mills in January, the May figure stands at 36,141,421. In May, 1941, 39,044,639 bushels were ground.

Of the 1093 mills for which reports were received by the U. S. Bureau of Census, 1057 accounted for 94.6% of the total wheat-flour production; average operation was 54.6% of their daily 24-hour capacity. Of these 1093 mills grinding something over 94.6% of the flour ground, 152 of them with over 1000 bbls. daily capacity each ground over 74% of the wheat; 93 with 29,584 bbls. capacity were idle.

Arthur Clark Dies

ARTHUR B. CLARK, 80, retired Super of the Great Northern Elevators in Duluth, passed away on June 9th.

CORN GRIND OFF

The Corn Industries Research Foundation reports that during June eleven refiners of starches, syrups, sugars and other derivatives of corn ground 9,767,762 bushels for domestic use.

FLAX GRIND HOLDING STEADY

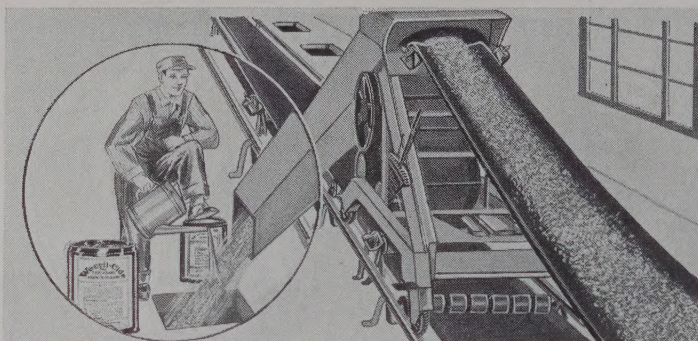
The crush of flaxseed and the production of linseed oil during the second quarter of 1942 showed material increase over similar periods, reports J. C. Capt, Director of Census. A record was established during the first quarter of this year of 375,888 tons of flax crushed.

	No. of Mills	Tons Crushed
1942	35	350,723
1941	30	262,809
1940	23	157,102

CAPABLE SUPER WANTED

Want Mill Superintendent capable of handling about 100 men whose duties would be to grind and mix feeds, handle grain through an elevator and other general mill work. Super would have complete charge of the milling department, and for that reason it would be necessary for him to know how to operate and repair mill machinery.—Address 42M, % GRAIN.

Thinking is the hardest thing one can do—which is probably the reason we have so few thinkers.—Henry Ford.



TAKE CARE OF STORAGE GRAIN THE EASY WAY



With storage space so limited, elevator operators are preoccupied more than ever this summer with the daily problems of making room, avoiding demurrage, etc. There is a natural tendency to forget temporarily grain already in storage.

Well, if it has been satisfactorily fumigated they can probably afford to forget it till fall. Properly treated grain carries through. The chances are it won't ever cause any worry. On the other hand, unfumigated grain that was merely cooled to halt insect activity is likely to start reinfesting during the summer from unkilld immature stages.

You can avoid this by using Weevil-Cide. If you know you're going to carry your grain through and that it's subject to infestation, fumigation with Weevil-Cide is pretty cheap insurance.

You can treat grain as cheaply as you can turn it two or three times. And to the firms who fumigate the most, fumigation seems less and less a "special" expense. The majority of Weevil-Cide users have long considered treating an integral part of regular operation.

They don't wait for an emergency to use it, but take fumigation "in stride." And many of them use preventative treating on long storage grain.

Where transferring space is entirely lacking, we frequently advise them on stationary treating. Such grain—with the aid of periodic temperature checks—is often left unmoved for a year or longer.



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